

Nueces Estuary Advisory Council (NEAC) Meeting

Monday, October 17, 2016 at 1:30 p.m.

Corpus Christi Water Utilities

2726 Holly Road, Corpus Christi, TX 78412

Minutes

Members Present: Leslie Patterson, Chair; Ray Allen; Jace Tunnell (alt. for Ed Buskey); Carla Guthrie; Jason Pinchback, Paul Carangelo; Rocky Freund; Con Mims; Bill Green; Brian Williams; Carola Serrato; Teresa Carrillo; Larry Lloyd (alt. for John Adams); Erin Hill (alt. for Brien Nicolau).

Call to Order and Introductions

Chair Leslie Patterson called the meeting to order. She introduced new members and alternates, including Carla Guthrie, Jason Pinchback, Larry Lloyd, Bill Green, and herself. Jade Rutledge, Texas Commission on Environmental Quality (TCEQ), notified the Council that Steve Hoey had resigned and the NEAC will be soliciting a volunteer to serve representing the Industrial sector. Chair Patterson asked members in attendance whether they would like to contact members, specifically those that have not attended recent meetings, concerning whether they would like to continue serving on the NEAC. Members present indicated they supported reaching out to reaffirm NEAC memberships.

Approval of Meeting Minutes

Members unanimously approved the September 21, 2015 meeting minutes.

Update on Work Plan Contracts and Future Funding

Caimee Schoenbaechler, Texas Water Development Board (TWDB or Board), is the contact for questions regarding the Nueces BBASC work plan contracts. Ms. Schoenbaechler stated that currently all Nueces work plan contracts have been awarded for this funding cycle. Carla Guthrie, TWDB, also informed members that the Board has requested 2 million dollars in legislative appropriations for the continued study of Environmental Flows. The funding would be divided across the biennium.

Nueces BBASC Work Plan Priority Projects

The study teams awarded funding for FY 15-17 each presented their contracted projects.

- 1) Identification of vegetation and marsh changes occurring in Rincon Bayou Delta and relationship of those changes to freshwater inflow (Ken Dunton, University of Texas Marine Science Institute (UTMSI)).
 - a. The goal of the project is to characterize landscape vegetation patterns in Nueces River Delta utilizing remote sensing and geospatial analysis.
 - b. The project aim is to determine the extent and rate of shoreline loss and will employ digital mapping cameras that are equipped with airborne GIS and inertial measurement units.
 - c. The project has 512 sampling stations with a clustered sampling approach. Sites will include tidal creeks, salt pans, as well as zonation in marshland. The study

team has mapped out four flight lines with 82 frames for imagery that will be collected in November 2016. Past results (from 1997-2005) found an average shoreline retreat of approximately 2.5 meters/year with a net loss of 10.15 acres of marsh. The rate of shoreline area loss in the study area is roughly 1.27 acres per year.

- d. Questions: Ray Allen asked if the transect monitoring project is still on-going. Mr. Dunton said that the study has maintained 6 transect vegetation sites for 20 years and monitors them biannually. Con Mims asked if the changes over the years have been positive or negative and what are they attributed to. Mr. Dunton responded that the vegetation is doing well despite drought and other issues; the system is resilient, but there is accelerated habitat loss and overbanking events are needed to ensure health of the system. Dave Buzan asked if the presence of mangroves has been investigated. Mr. Dunton answered that mangroves are currently being plotted, but he would like to focus more on separating out succulent vegetation types. He stated that mangroves are present in the U.S. Army Corps of Engineers site, not throughout the marsh. Mr. Allen mentioned that the General Land Office (GLO) is investigating erosion control structures and will seek permits for potential future projects, which may be of some interest to the study team.

2) Nueces Bay Circulation Assessment Project (Jace Tunnell for Lindsay Scheef, UTMSI and Mission-Aransas NERR)

- a. The study will collect 1 year of circulation data in upper Nueces Bay using tilt current meters. Ten tilt meters were installed in July 2016 and will be monitored through July 2017.
- b. Questions: Mr. Allen inquired about whether similar work had been done in Copano Bay. Mr. Tunnell stated that Dr. Scheef has done similar work in several bay systems, including Copano Bay and Cedar Bayou.

3) Re-examination of the 2001 Agreed Order Monthly Targets: Phase II (Cory Shockley, HDR)

- a. During the previous funding cycle, the study team investigated historical data on freshwater inflows into Nueces Bay as well as re-examined the 2001 Agreed Order (AO) monthly targets. The results of the study showed monthly targets could be higher in May, June, August and September.
- b. The new scope of work for the current funding cycle is to develop scenarios and run them through the model and compare with results from phase 1. The study will keep annual volume to the Nueces bay and estuary the same at 138,000 acre-feet, but will investigate scenarios such as shifting targets between months or a seasonal approach. The study will only apply historical hydrology. Depending on the results of the modeling, the study group may provide a recommendation for a pilot project to the NEAC with potentially different sets of targets. Mr. Shockley requested members provide input on the additional scenarios analyzed.

- c. Questions: Mr. Allen asked whether Phase 1 (funding cycle 1) in the study included modifications of the model to evaluate a seasonal approach. Mr. Shockley responded that the model can evaluate seasons, but it is not in the current Scope of Work. Mr. Mims asked if any of the studies evaluated the annual amount in the AO. Mr. Shockley said that the amount is set in the AO, but can run the scenario with different totals if requested for the project. Mr. Mims stated that he would be interested in the impact on biology of a higher total amount. Chair Patterson responded that the annual amount is set in the AO. Mr. Buzan mentioned that 166,000 ac-ft. of freshwater inflows was recommended by the BBEST to maintain and promote a healthy estuary and that the TWDB and TPWD recommended a seasonal freshwater inflow (FWI) approach of which out of the total 87,000 ac-ft. was recommended for spring. Mr. Shockley indicated he could frontload monthly targets to mimic that recommendation. Mr. Allen mentioned that there isn't seasonal flexibility in the AO, despite rain events in different time frames. Rocky Freund asked for more information on the study teams pilot project recommendations to be provided at the end of this Phase 2 funding cycle. Mr. Shockley responded that the pilot project will be a recommendation only, without actual implementation. Chris Loft, former Chair, had said a ten year pilot project could be done without changing the AO. Chair Patterson said that he may have been referring to a term permit. Mr. Shockley also mentioned that salinity is included in the modeling.

4) Nutrient budget for Nueces Bay (Dan Opdyke, Anchor QEA)

- a. This project will evaluate the nutrient loadings within the bay system. The study group will evaluate existing data and develop a conceptual site model that will provide a schematic representation of the system. Quantified sources and sinks will be evaluated based on data and literature. The project will include a nutrient budget and will make recommendations for pre- development and post- development conditions. The project will also evaluate the potential for paleolimnological study to gather information for the pre-development ecological health. This process would use sediment cores to refine nutrient data. A draft report will be provided in Summer 2017, with the final report due to the Board at the end of August 2017.
- b. Questions: Mr. Tunnell asked whether Anchor QEA had spoken to Texas A&M Corpus Christi about zinc core studies. Mr. Opdyke said that he had reviewed the study and will reach out to the report's authors. Paul Carangelo asked if the work could determine whether the bay is nutrient cleansing at present. Mr. Opdyke responded that it won't be directly evaluated, but will see where nitrogen will be increasing or decreasing over time. This study is not looking at growth conditions, but it could be a subsequent study. Bill Green asked when the NEAC will review draft reports. Mr. Opdyke said that the NEAC would be provided the draft report and will be able to comment before the final report is submitted. Erin Hill asked how this study differs from HDR's study during the last

funding cycle. Mr. Opdyke stated that the work would be focused on Nueces Bay rather than in the basin and would evaluate nutrient sources and sinks.

- 5) Explore and evaluate alternative methods to increase freshwater to the Nueces Delta (Dave Buzan, Freese & Nichols)
 - a. The project will identify strategies to provide freshwater inflows to the bay. Existing information will be compiled, such as source of water, amount of water, costs, potential points of addition, ecological impacts, etc. at a general level. Mr. Buzan requested that members provide feedback on how to approach these tasks. He plans to set up interviews with members to gather ideas. The final report will include a list of alternatives and information gathered about each alternative. The team will prepare a draft report in June 2017 and a final report in August 2017.
 - b. Questions: Mr. Allen asked about stormwater or industrial wastewater and where it flows into the bay. Mr. Buzan responded that the study team is trying to evaluate various strategies, including stormwater or industrial wastewater. Mr. Tunnell mentioned that little water is reaching South Lake. He asked whether there was a better discharge location for water to reach the area. Mr. Buzan responded that it depends on permitting requirements, cost, and how much water is needed to reach the area. Mr. Mims asked whether it would be possible to supplement flows with brackish groundwater. Mr. Allen said that he recalled that there isn't enough brackish groundwater available for this to be feasible. Mr. Green mentioned that there would need to be an investigation of the productivity of the aquifer and salinity of the water source. Jason Pinchback asked about the potential for desalination water as a source. James Dodson commented that brackish product water from the desalination process may be something to investigate.
- 6) Verification and feasibility assessment for landform modification in the Nueces Delta (James Dodson, Naismith Engineering)
 - a. This project is a follow up study from the last funding cycle. The initial study evaluated scenarios to increase the extent of flooding, duration of inundation, and modify salinity in the Nueces Delta/Marsh System. The team modeled 8 scenarios each with a 30 day duration with 1,200 ac-ft or 3,000 ac-ft freshwater inflow targets, respectively. The modeled projections showed the effect of adding freshwater channels circulated water into different areas of the bay. The inclusion of the channels is effective in increasing the area flooded with 20-25 ppt salinity, but at the expense of reducing some of the areas that would otherwise see salinities below 15 ppt.
 - b. For this current phase of the study, the project will include an archeological desktop assessment, development of field data collection procedures, and some limited field work. The team will prepare a draft report in June 2017 and the final report in August 2017.

- c. Mr. Carangelo asked about the lack of overbanking with these scenarios. He asked if the model could be altered to include an overbanking event to show where additional water would go. Mr. Dodson believes that the model could be run with different scenarios, although the currently funded project only features two scenarios. Rex Hunt asked about the Odem Wastewater Treatment Plant and how much return flows are available. Mr. Dodson said the discharge from the plant is occurring, but very little water makes it down to bay and it is lost as channel seepage.

Other Presentation

- 1) Effects of Rincon Bayou Pumping (Evan Turner for Paul Montagna, Harte Research Institute for Gulf of Mexico Studies)
 - a. Mr. Turner provided an overview of the Rincon Bayou Pipeline and the Edwards Pump Station system. In 2009, the bayou converted into a positive estuary from a negative estuary due to pumping activity and initially freshwater would flow back upstream rather than through the delta. A backflow preventer was constructed in July 2014 to limit this, but was washed out in July 2015. In this study, push nets were used to sample fish and invertebrates species to determine the effects of Rincon Bayou pumping. The results of the study indicate diversity is low because of frequent salinity swings, which cause disturbances within benthic epifauna communities. Sediment cores, taken for benthic infauna sampling, identified only 12 infauna species near the Rincon Bayou pipeline outfall, which Mr. Turner indicated was low, compared to hundreds of species found in the bay. The team also modeled benthic communities to predict species responses from physical changes (i.e. freshwater) in Rincon Bayou. Based on the results of the model, 0.41 m³/s (29 ac-ft/day) of freshwater would maintain optimal salinity and depth for bioindicator species. The releases should be continuous instead of flood like events. The team recommends that only one pump be used at a time, which will take about 24 days (at 126 ac-ft/d) to deliver 3,000 ac-ft/month. Releases should not be timed for end of month because that requires 3 pumps over a short time period making floods worse and that they should not be dependent on pass-through requirements because they are needed most during dry periods.
 - b. Questions: Mr. Buzan asked about the sampling frequency. Mr. Turner indicated that the team started monthly sampling in 2014. The team has now moved to quarterly sampling, but that sampling frequency could be increased if more funding was available. Mr. Allen asked about the pass through system and whether it can mimic the historic freshwater inflow into the bayou. Mr. Turner responded that there is no historical data on the freshwater inflow to this area. Mr. Allen mentioned that a pump that would release a smaller amount could pump for a longer period of time, which could be beneficial. Ms. Hill stated that large white shrimp were caught in gill nets in the lower Rincon Bayou recently. Mr. Turner asked if that sampling was done after rain event and she confirmed that it was.

Additional Items and Future Meeting Date and Time

Mike Lee from the United States Geologic Survey (not in attendance) provided a handout about a project that may be of interest to NEAC members. The project is an evaluation of the variability of sediment and nutrient loading into Texas bays and estuaries from riverine systems. This work is being done in several basins, including the Nueces. Members expressed interest in having him present at a future NEAC meeting.

Chair Patterson suggested that the NEAC meet again in late April or early May 2017. The TCEQ will send out a doodle poll to obtain member availability. Mr. Tunnell mentioned that the Nueces BBASC work plan may need to be updated prior to that time.

Chair Patterson mentioned that there are new Environmental Flows Advisory Group (EFAG) members were appointed by the governor and an announcement will be distributed to shortly.

Public Comment

Mr. Topher provided a list of questions and provided public comments to the NEAC. In his statement, Mr. Topher asked which entity is responsible for releasing water from dam because water levels are lower after each pass through event. Mr. Topher also mentioned that there is a large volume of Hyacinths and they consume substantial amounts of water. He stated that weevils have been used as a control measure in other locations and that spraying does not seem to be effective. Mr. Topher stressed that the members needs to focus on the health of wildlife. Mr. Topher also mentioned that salinity of water in river needs to be measured because he has noticed fish kills in river. Mr. Topher also said that red tide has been carried into the back of the bay and inflows are needed to keep red tide out. Mr. Topher suggested that the NEAC consider barrier islands, similar to those created in Louisiana, to help stop coastal erosion. Copies of his questions were distributed to NEAC members after the meeting.

Meeting Adjourned